Appl. No. 09/715,693
Amdt. dated 15 February 2005
Reply to Office communication dated 19-Nov-04

Remarks/Arguments

Reconsideration Requested

Applicants have given careful consideration to the grounds of the examiner in rejecting applicant's claims 1, 2, 14 and 20 under 35 USC §102(e) as being anticipated by one reference Dantu et al. US Pat. N$^{o.}$ **6,532,088 B1** the focus of which is summarized at col. 4, lines 40 – 59:

> . . . a fiber optic ring network that includes a plurality of ***fiber optic ring networks*** that provide routing of IP traffic. User traffic may be conducted on a working path or on a protection path in the event of a communication link failure in the working path. A central node is coupled to a plurality of nodes to ***provide a forwarding table for the nodes*** to use to forward a data packet received from the central node. The central node also provides ***updates for the forwarding table to the nodes***. As a result, ***IP traffic may be routed through the fiber optic ring network*** in a manner that provides fast switching from a working path to a protection path to minimize lost data packets whenever a communication link in the working path fails. Additionally, this capability is provided without requiring each node to have full IP routing capability. Because the central node creates and provides forwarding tables and forwarding table updates for each of the nodes on the fiber optic ring network, the individual nodes are not required to have full IP router capability thereby reducing complexity and cost [***emphasis added***].

The examiner has already recognized—in allowing a significant portion of applicant's claims—that there are claimed features missing from the references, namely, features recited in applicant's claims 3-13, 15-19, 21 and 22. For the following reasons, applicant respectfully solicits reconsideration of the examiner's latest rejections of claims 1, 2, 14 & 20 under §102(e).

Claim Rejections under 35 USC § 102

Applicants' claims 1, 2, 14 and 20 stand rejected by the examiner under 35 U.S.C. §102(e), as being anticipated by Dantu et al. N$^{o.}$ **6, 532,088**. A closer look reveals the applicant's claimed invention contains features missing from Dantu et al.—one reason for this is that Dantu's optical network is designed for transmitting IP traffic through a classic fiber optic ***ring*** network configuration, as they explain throughout (see passage above, and FIGs. 1 & 2 below):

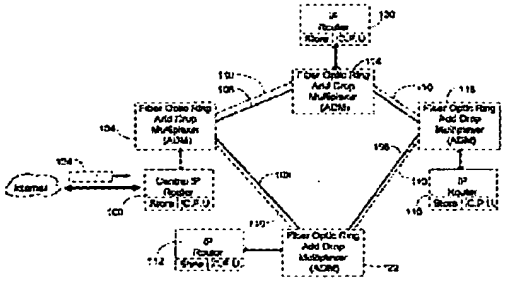


FIG. 1

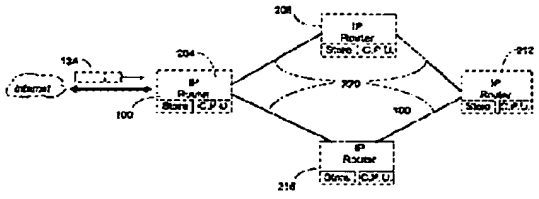


FIG. 2

Missing from Dantu et al. are features of applicant's claimed invention—and in fact, Dantu et al. leads one away from applicant's claimed combination of IP traffic pathway options for routing within its novel mesh network. Applicant's claims 1 and 14, respectively, recite:

> a first bi-directional coupling between said first and second switch elements, a second bi-directional coupling between said first and third switch elements, and a third bi-directional coupling between said second and third switch elements; and
>
> a first controller for interrogating the address information of each of the data segments inbound into said first switch element, any of said inbound data segments received by said first switch element to be directed out along a selected exit pathway;
>
> whereby said exit pathway for said any inbound data segment so received is selected according to the address information of said any inbound data segment, and if a contention exists for said exit pathway, further according to a priority designator of said any inbound data segment; said exit pathway to be selected from the group consisting of: if said first switch element is an outbound destination for said any inbound data segment, said first external output; and one of said bi-directional couplings in communication with said first switch element. **[claim 1]**
>
> . . .
>
> providing a first bi-directional coupling between said first and second switch elements, a second bi-directional coupling between said first and third switch elements, and a third bi-directional coupling between said second and third switch elements;
>
> interrogating an address information of each of the data segments inbound into any of said first, second, and third switch elements routed by way of a respective external input; and
>
> selecting an exit pathway for each of said inbound data segments received by a respective one of said switch elements according to said address information of said each data segment received, and if a contention exists for said exit pathway, further according to a priority designator of said each data segment received; said exit pathway to be selected from the group consisting of: if said respective switch element is an outbound destination for said each data segment received, a respective external output of said respective switch element; and one of said bi-directional couplings in communication with said respective switch element. **[claim 14]**

There is no mention in Dantu et al. as to "a first bi-directional coupling between said first and second switch elements, a second bi-directional coupling between said first and third switch elements, and a third bi-directional coupling between said second and third switch elements; ... said exit pathway to be selected from the group consisting of: if said first switch element is an outbound destination for said any inbound data segment, said first external output; and one of said bi-directional couplings in communication with said first switch element" as claimed by the applicant. But rather, in each case where Dantu et al. details the components of its network, it is to an optical ***ring form*** network, whereby IP traffic is routed in a ring (see FIGs. 1–3 reproduced herein). Dantu explains that interconnections shown as dashed lines at 324, 328, 332 are limited to sending forwarding table and table updates to nodes connected in a fiber optic ***ring*** network. Note that there is no IP traffic routed between nodes 300 and 316, nor between nodes 312 and 320 (Dantu FIG. 3). At col. 8, lines 8–14 & 20–25, and col. 14, lines 14–22 Dantu et al explain:

> . . .Each of the nodes 300, 312, 316 and 320 are coupled in a ring topology by fiber optic ring 108 and by fiber optic ring 110. Rings 108 and 110 conduct traffic in circularly opposite directions to provide working and protection path routing to every node on the fiber optic ring network. In an alternate embodiment, the nodes are coupled by only one fiber optic ring 108. In this alternate embodiment, traffic is conducted in circularly opposite directions on the one ring 108. . . .
>
> . . . Control communications lines 324, 328 and 332 each couple nodes 312, 316 and 320 to central fiber optic ring network node 300 in a star topology. Node 300 transmits forwarding tables and table updates to nodes 312, 316 and 320 (the "forwarding nodes") over the control communication lines 324, 328 and 332. . . .
>
> . . . After the forwarding table updates (if necessary) and tables have been sent to the nodes on the fiber optic ring network, the fiber optic ring network is ready to transport user traffic. Accordingly, when central node 300 receives IP user traffic, it converts the IP user traffic to TDM format and transmits it onto the fiber optic ring network (step 610). The nodes on the fiber optic ring network then forward the converted IP user traffic as specified in their forwarding tables [describing their FIG. 6 flow chart].

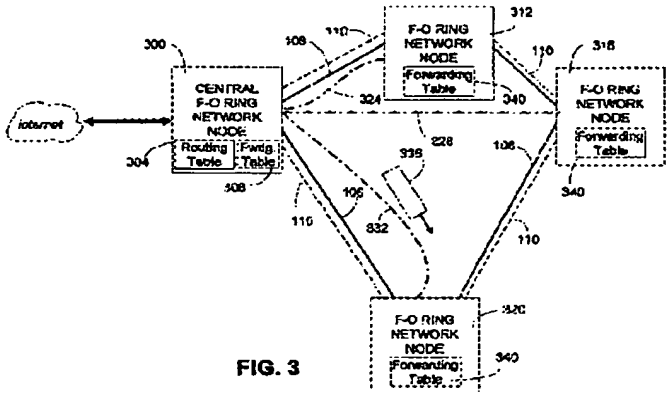


FIG. 3

At col. 15, lines 1–10 Dantu et al. describe their FIG. 8 schematic—which depicts, once again, an optic ***ring*** configuration for routing IP traffic (note there is no IP traffic routed between nodes 812 and 804, nor between nodes 800 and 806):

> . . . to FIG. 8, a fiber optic ring network includes a central ingress node 800 that is communicatively coupled to nodes 804, 808 and 812 by way of fiber optic ring 816 and fiber optic ring 820. As may be seen, ring 816 conducts user traffic in the direction shown at 824. Ring 820, on the other hand, conducts user traffic in the direction shown at 828. While the embodiment shown in FIG. 8 comprises two rings, namely rings 816 and 820, alternate embodiments include a one ring system that is operable to conduct user traffic in two directions, namely, in the directions shown at 824 and 828.

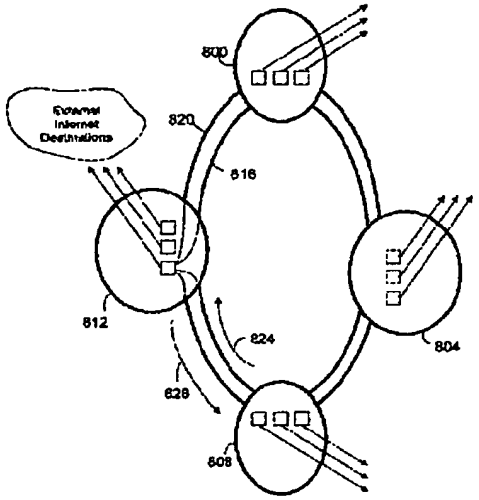


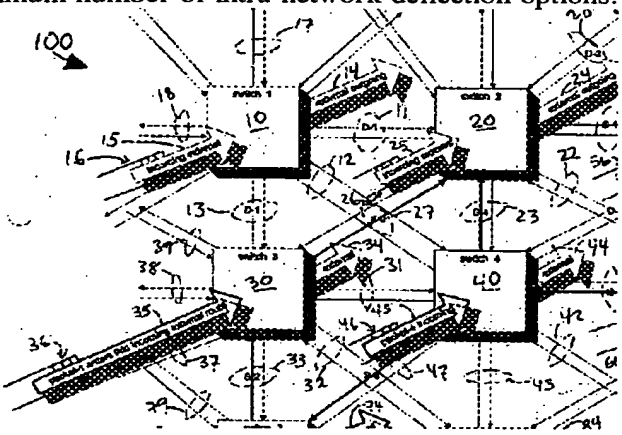
FIG. 8

It is not surprising that Dantu et al. does not mention or suggest the possibility of having an optical signal (IP traffic) travel along alternate routes: Optical signals (IP traffic) in every Dantu et al. network example are transmitted over paths connected in ***ring*** form. Alternate routes, where a given optical path is experiencing failure, include no option for direct IP traffic interconnectivity with neighboring nodes, but rather IP traffic is directed along parallel ***ring*** route pairs such as those labeled 108, 110 in FIGs. 1 & 3 and 816, 820 in FIG. 8.

Applicant's claimed network interconnection configuration is distinguishable from the Dantu et al. configurations. In his specification on pg. 9, lines 6-16 (reproduced below, along with a portion of FIG. 1, for handy reference), applicant points to unique features of his network:

> Each bi-directional coupling between neighboring switch elements is represented

by a pair of opposing arrows, each arrow representing the direction of data flow along one of the two links. For example, due to its central location within network 100, switch element 40 is bi-directional coupled with each of the nine elements shown: coupling 12 connects it with element 10; coupling 23 connects it with element 20; coupling 57 connects it with element 50; coupling 41 connects it with element 60; coupling 42 connects it with element 90; coupling 43 connects it with element 80; coupling 47 connects it with element 70; and coupling 31 connects it with element 30. As one can appreciate, in the event more switch elements (or fewer) are incorporated into the network, each is preferably interconnected with a neighboring element to provide a maximum number of intra-network deflection options. . . .



As one can appreciate, applicant's independent claims 1, 14, and 20, as well as dependent claim 2, include features distinguishable from Dantu et al., for which no equivalent structure(s) exist for the unique combination of features designed and claimed by applicant. Nothing in this reference discloses, nor teaches or suggests the combination of structural features claimed by applicants. Furthermore, there is no need or motivation to modify Dantu et al's design into the unique interconnected network configuration claimed by the applicant.

Claim Rejections under 35 USC § 102 / Anticipation – Legal Summary

Once again, without full citations: For a prior art reference to anticipate in terms of 35 U.S.C. §102, *every* element of the claimed invention must be identically shown in a single reference . . . These elements must be arranged as in the claim under review ... . The Federal Circuit has further reiterated that "[t]here must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention, [*Scripps Clinic & Research Foundation*]". A prior art reference anticipates a claim only if the

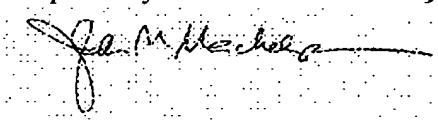
reference discloses, either expressly or inherently, every limitation of the claim. Absence from the reference of any claimed element negates anticipation. An anticipation rejection under §102 can stand against a pending claim *only* if a single piece of prior art discloses a combination including *each* element of the pending claim such that each prior art element is identical to a corresponding, similar structurally-arranged element of the pending claim. This is not the case, here. For reasons enumerated above, applicants submit that his independent claims 1, 14, and 20 —as well as each dependent claim depending therefrom—include features not disclosed in, and not taught or suggested by the identified reference.

Summary/Conclusion and Request for Reconsideration

In sum, after careful consideration of the patent-references identified and placed on the instant record, one can see that each fails to disclose, teach or suggest the instant unique claimed invention. Dantu et al. as well as each of the other identified patents stops short of appreciating or providing motivation to lead an artisan to arrive at the structure claimed in applicant's independent claims. With each reference silent as to certain of the claimed features, applicant's claimed invention overcomes the §102 rejections. Furthermore, not only is each reference silent as to certain features, but rather, this absence of feature(s) provides a teaching away from the unique claimed combination(s) —as reasoned above—it is difficult to imagine how one could be led by the references to so combine to reject applicant's claims. And, while each dependent claim depending from an independent claim containing patentable subject matter is also considered patentably distinct by way of including features of a respective independent claim, the examiner has recognized that applicant's dependent claims include limitations not taught by any individual patent reference cited and noted.

The claims overcome the examiner's §102 rejections by claiming unique combination(s) of features; and as such, all pending claims under consideration are patentably distinct from the art and thus contain allowable subject matter. Favorable reconsideration is respectfully solicited. The undersigned encourages the examiner to call at a time convenient to the examiner, if needed.

Respectfully submitted this ***15th day of February 2005***,



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